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SITUATION ESTIMATE

FOR

PROJECT CHALICE

FISCAL YEARS 1961 and 1962

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I INTRODUCTION

1. PURPOSE

- a) To provide doctrinal guidance for the planning and conduct of project operations during the FY 1961-62 time period. Due to current events the need for timely minor changes is recognized. This document will be utilized as a common reference and/or departure point for all concerned consistent with the above.
- b) Upon approval of the concept the document may be used as the basis for justification of the budget. As such it will be reviewed and revised as necessary and no later than 1 June 1961 in order that it can again become the basis for budgeting and long range planning for FY 1962 and 1963: This to include operational effectiveness, the formulation of policy, tactics and techniques, and the determination of operational and R & D requirements.
- c) In addition, revisions will be made consistent with the latest technological advancements, the current political and economic situation, and new offensive and defensive concepts as pertains to the national security, in order to provide timely and effective guidance for any follow-on program.

2. BACKGROUND AND HISTORY

- a) At the time the Soviet Union and its satellites denied normal access to its territory, the need for a method to collect all kinds of intelligence became readily apparent and the requirement was of the highest priority. The rapid technological advances of the Soviet Union indicated the need for prompt and aggressive action in order to obtain a capability which would satisfy the intelligence requirements.
- b) At the request of the highest executive branch of the Government various studies were performed by the most capable scientific groups in the country. All of the studies validated the requirements, emphasized the need for prompt and aggressive action, and recommended the utilization of airborne platforms.
- c) To provide the capability for relatively safe overflights, the Lockheed U-2 was developed in 1955. Built into the U-2 was an altitude capability of approximately 70,000 feet which, at that time, was considered almost certain to be in excess of the capability of the USSR to physically interfere. Initially, it was expected that, although the Soviets could not intercept the U-2 with manned aircraft or missiles of any type, they might have a limited capability of tracking the U-2 with radar. This assumption later proved to be correct except for the overly optimistic anticipation that Soviet radar capability would be "limited". Soviet ability to detect and track the U-2 on penetration and during virtually

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its entire flight in denied territory was conclusively established early in the program and has continued to be the case up to the present time with one notable exception; i.e., penetrations of the USSR in the vicinity of the Soviet-Afghanistan-Pakistan border. In the period July 1959 to February 1960 three such penetrations were accomplished without, to our knowledge, detection by the Soviet Air Defense system. On the basis of this experience, we can at least tentatively conclude that if penetration can be made without detection, there is an excellent chance that the entire mission can be completed without recognition by the air defense system.

It is reasonable to assume that Soviet capability to intercept the U-2 will increase during the period under discussion. However, it is believed that with careful flight planning and target selection, the use of dispersal and deployment bases for deception, minimum time on the ground, at pre and post-strike bases, and other tactics designed to decrease operational hazards, the U-2 will continue to possess a significant overflight utility during at least a portion of this period.*

d) Diplomatic protests which the USSR has made as a result of the AQUATONE operations in the summer of 1956 and again in early 1958 make it imperative that Project CHALICE operations be conducted in such a manner as to reduce the probability of protest. In the original protest of 1956, the violation of the air space over third countries was considered to have been the primary motivation for the USSR protest. This view continues valid despite a Soviet protest in early 1958 concerning a flight which, although it did not violate a third country, did fly into its radar screen with the resultant possibility that the third country had knowledge that a penetration of the USSR had been made. In the period between the 1956 and 1958 protests a total of 20 penetrations were made of the USSR and satellite countries without diplomatic protest from any source. In no instance, however, was the USSR and a satellite country penetrated on the same mission. Recorded reaction to these flights indicates that the violated countries were, in most instances, aware at the very least that a prohibitive flight was being made. It was further assumed that, in at least some cases, the USSR had equal evidence of overflight by U.S. aircraft as it had for both the 1956 and 1958 protests. It should be noted that the 1958 protest was not made

*A separate attachment to this report entitled "Life Expectancy of the U-2 on Overflights" purposely has been omitted from general distribution because of its special classification. This attachment is available in the Intelligence Section on a "need to know" basis.

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public. The resultant implication is that the Soviets lacking the physical capability to stop such overflights, are forced to use diplomatic measures. In both protest cases, high U. S. political authority directed that the overflights be stopped immediately. The reaction to the Soviet diplomatic action will probably continue throughout this period and will be taken into consideration for planning and when submitting proposed overflights for political approval.

e) It is felt that the use of dispersal and deployment bases in combination with the fast move concepts (maximum ground time 3 - 5 hours) will deprive the Russians of information concerning origin, termination, etc., and thereby degrade and/or weaken an official protest. This would also allow for more plausible U.S. denial.

II INTELLIGENCE REQUIREMENTS

1. TARGET SELECTION

Intelligence Requirements for penetration flights by Project CHALICE have been established by the Ad Hoc Requirements Committee which is composed of representatives of the Army, Navy, Air Force, Central Intelligence Agency, and the National Security Agency. Requirements encompass the fields of photographic intelligence, electronics intelligence, [redacted] These requirements

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[redacted]
gence Community. Consolidated target lists and established priorities reflect the composite views of all the agencies represented on both committees and, as such, represent the consensus of the [redacted] as a whole. Targets and priorities periodically are reviewed by the committees and revisions are made based on the most current intelligence available from all sources.

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2. TASK

Basic to the requirement for early warning of the imminence of a Soviet nuclear attack on the United States is the requirement for reliable information on the present and future Soviet capabilities for such an attack. Such information is also critical to our national defense policy and planning. During the past four years CHALICE

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coverage has been by far the most lucrative source of reliable information on which we have based our estimates of the Soviet capabilities for nuclear attack. At the present time, there is an urgent need for CHALICE coverage of certain objectives and areas known to be, or suspected to be, associated with the three major elements (ballistic missile, aircraft, and nuclear capability).

a. The most critical intelligence problem at this time is the status of the Soviet ICBM program, an inherent threat of overriding magnitude. Studies over the past two years by the U.S. Intelligence Community have concluded that CHALICE provides the only available means offering reasonable assurance of obtaining on an immediate basis the required intelligence on the deployment of Soviet ICBMs. Certain rail lines which lend themselves to rail launch or logistic support for fixed sites and test sites are prime search areas for this information. Increased urgency has been lent to the deployment question by recent evidence of ICBM series production. Coverage of the most suspect production facilities may help to confirm this.*

b. Other requirements (not in order of priority) for CHALICE coverage which are also critical to national security are set forth in the following paragraphs.

(1) It is recognized that a part of the Soviet ballistic missile capability may be launched from submarines, nuclear powered or conventional. Our need is to determine the possible modification of existing craft, construction of new ballistic missile submarines, and employment of both. CHALICE coverage offers the best available means of answering the questions on production, characteristics, and employment of submarines capable of launching ballistic missiles.

(2) The existence of a Soviet IRBM capability is recognized as a fact, although this capability is less critical to the United States than the ICBM. It constitutes an immediate and continuing threat to the West. CHALICE coverage offers the best known means to answer the question of what is the deployment concept and should assist with information on the capability of these weapons as well as their production.

*The Joint Priorities Committee agreed that the most critical question was guided missiles, though they did not seem to feel it necessary to distinguish between IRBM and ICBM. Further, they rate research and development and production as much higher than deployment at this time since evidence on these would permit a judgment of whether there was indeed a threat in existence; current thinking does not put deployment as probable in the case of the ICBM.

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(3) The Soviet heavy bomber force today poses an immediate nuclear threat. Intelligence derived from sources other than CHALICE has provided a fairly accurate measurement of the magnitude and capability of this threat. Previous CHALICE coverage has served to confirm and augment this intelligence. However, we also have evidence that the Soviets are developing a follow-on bomber aircraft which may replace the present bomber force. In order to establish the status and magnitude of the Soviet effort in the heavy bomber program, to clarify the inter-relationships of this and other Soviet weapons delivery systems, and thus to gain a more accurate measurement of the overall Soviet nuclear threat, both present and future, it is also critical that we cover certain key Soviet bomber bases, bomber production sites, and R & D facilities.

(4) In addition to knowledge of Soviet delivery system, information on the production of fissionable materials is essential to an accurate and positive measurement of the Soviet nuclear threat. Although extensive coverage of Soviet Atomic energy installations has already been acquired through CHALICE operations, three of ten largest AE sites in the Soviet Union remain uncovered and are highest priority requirements. Production rates at these sites are a major source of uncertainty in estimates of Soviet plutonium production. Although we concede an immediate Soviet capability to launch a devastating nuclear attack against the U.S., we do not have sufficient information to gauge whether the Soviets have, or are producing sufficient fissionable material in order:

- (a) To provide the required nuclear warheads for air defense;
- (b) To mount a sustained attack;
- (c) To arm all or a great portion of their tactical weapons with nuclear warheads.

(5) The number and pattern of deployment of Soviet surface-to air missile sites (SA-2) is of critical concern to the Strategic Air Command. CHALICE photography has already pinpointed approximately 50 of these sites including support facilities. Coverage of additional SAM defended areas remains a high priority requirement.

CHALICE coverage of one production area has enabled us to make a reasonably accurate estimate of the plutonium and U-235 production from this location. Coverage of the remaining key production sites

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can supply us with information for an estimate of the production of fissionable material at this time and can also permit a projection of production for three or more years. Such information has never been obtained through other collection methods and, in addition to its critical urgency for estimates of immediate Soviet capability, indications of a program out of all proportion to our estimate of Soviet needs would be a most significant indication of possible Soviet intentions and of inestimable use for political maneuvering, as well as military planning.

3. TARGETS

Photographic and electronic objectives (targets) to fulfill the needs outlined above are set forth in separate listings which are constantly under review and revision by the Ad Hoc Requirements Committee.

4. COROLLARY TASKS

Valuable intelligence by-products also can be anticipated as a result of the coverage of the primary systems herein discussed. Route photography can be expected to yield significant details of other Soviet air installations, transportation systems, industrial facilities, IREM and ICEM installations, and other economic and military targets which could be of a significance only slightly less than the information we anticipate on primary objectives. One of the outstanding bonus effects that we know will be derived from future exercise of the CHALICE capability will be an increase in our knowledge of Soviet air defense capabilities. Fairly precise data on the general deployment and characteristics of Soviet defensive electronic sites in otherwise inaccessible areas can be obtained through the capability of CHALICE equipment to detect and record electronic intelligence data. This increase in knowledge will result in a firmer base for operational plans that involve employment of our nuclear strike force. It should also be noted that exercise of the CHALICE capability over otherwise largely inaccessible areas of the USSR could reveal installations and activities of a completely unknown but highly significant nature. As a specific by-product, CHALICE photography yields terrain information from which accurate radar navigation and target charts, and radar prediction plates, can be constructed. It is also anticipated that this photography will permit resolution of invaluable precise geodetic data which is so essential to the successful destruction of enemy targets by guided missiles.

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III CONCEPT OF OPERATIONS

1. EMPLOYMENT

- a) In order to fully exploit the operational capability built into the airframe of the U-2, considerable support will be maintained in the form of overseas and ZI bases, highly skilled personnel, and above all, airborne collection equipment. In order for Project CHALICE to have maximum capability, permanent overseas bases will be maintained in Europe at Adana, Turkey, and in the Far East at Atsugi, Japan.
- b) In addition, an air base facility within the ZI is necessary to carry on continuing research and development, and, for further perfection of equipment and techniques. Due to the fact that a follow-on aircraft will not be available for approximately 12 to 18 months every appropriate action will be taken to product-improve the existing capability as pertains to aircraft performance. Primary mission capabilities product improvement will be in the form of increased reliability, weight reduction, quantitative and qualitative improvement relating to the end product. In order to offset "end product" degradation due to increased performance, every effort will be made to improve the existing and/or develop new, primary mission capabilities to the extent that the end products will be equal to or better than those now obtained. Therefore, the facilities presently in use at Edwards AFB (north base) will be maintained throughout the lifetime of the U-2.
- c) The support of the facilities at [redacted] will be required for the entire period. Increased activity due to the follow-on program and product improvement of CHALICE will have to be provided for.
- d) Certain other facilities will be required for periodic staging and for ferrying of aircraft between the ZI and overseas bases. (Encl #2)

2. MISSION AND MISSION PLANNING

- a) With reference to CIA's responsibilities as pertains to the National Security, the following primary and secondary missions are stated:

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1. To conduct overflight and peripheral aerial reconnaissance (Photo and Elint) of the USSR and the USSR satellite countries in order to obtain adequate and timely intelligence consistent with the provisions mentioned in Section II "Intelligence Requirements".

2. To conduct overflight and peripheral aerial reconnaissance (Photo and Elint) on a world-wide basis in order to obtain adequate and timely intelligence which will uphold and advance the national policies and interests of the U.S. as well as safeguard the security of the U.S.

b) To fulfil the above requirements the "Operational Concept" will take cognizance of the latest political considerations and intelligence requirements as outlined by the ARC. The concept which has evolved from experience, and which will be followed during the period will feature careful selection of highest priority objectives and prudent application of all planning factors to minimize the probability of protest. During the period we have programmed a maximum of 35 photo-overflights. (20/1961-15/1962) However, a number which will actually be accomplished will be dependent upon executive approval.

c) Since it is reasonably sure that the permanent overseas bases are known by the Russians, and their proximity to Russian territory allows for radar surveillance, and the fact that operations from these bases would necessitate penetration of heavily defended areas, extensive use of staging bases will be required. In addition, it can be assumed that these bases are possibly under visual surveillance. All of which points out the need for greater deception and mobility during this period. It is planned that future Project CHALICE missions will be directed against areas in which the Soviets have the least radar tracking capability and in such a manner as to create maximum difficulty for positive tracking. Selection of such areas will be consistent with highest priority target coverage requirements. In addition, every effort will be made to avoid the involvement of third countries (specifically, Soviet Satellite Nations) either by overflying them on penetration or withdrawal from the USSR, or by permitting them to become knowledgeable, through their radar defenses, that such a penetration is being made. In all operational planning and execution, the safety of the aircraft will be of primary consideration.

3. UTILIZATION

a) Training should be realistic in that wherever possible the results obtained will be useful in the event that the bases and/or areas flown over are denied to the U.S. in the future.

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b) Training will include the exercise of mobility plans utilizing airlift to support staging to and from dispersal and deployment bases. Training exercises will be accomplished on the fast move concept with minimum U-2 ground time at any of the bases utilized.

c) The U-2 will be used in tactical situations and to accomplish peripheral electronic and photographic reconnaissance. The advantages in terms of training, economy, availability of a timely operational capability, have been demonstrated during the past years in such areas as the Middle East, Indonesia, Indo-China and the Baltic. It is felt that we stand to lose more than we would gain by not doing so. The relative value of the exercise we give the Russian radars does not outweigh the relative economic and operational reasons for doing so. The Russian radar operators are known to be proficient and the qualitative technical characteristics of their equipment is such that the above-mentioned flights - per se - would not induce greater Russian technological efforts in the radar field. In addition, it is felt that maximum utilization of the U-2 should be planned throughout the estimated operational life of the U-2 rather than wait for primary mission political approval that may never come. In addition, it is felt that knowledge of continued and current successful operations by higher level would be conducive to obtaining political approval.

4. PRIMARY MISSION CAPABILITIES

a) In addition to photographic and electronic collection equipment which would be carried on overflight missions, it will be necessary to maintain weather observation equipment for purposes of cover; and [redacted] during periods when overflights are not in progress. A list of required equipment is attached as Enclosure 3.

5. MAINTENANCE AND SUPPORT

a) In order to maintain the high reliability of aircraft and equipment, the concept of contractor maintenance will be continued. In addition, processing of overflight photography by EK will be continued to insure maximum intelligence exploitation. (Personnel strength will remain as stipulated in current TO's, with possibly minor adjustments.)

6. CONTROL

a) The concept of overflights (and certain other missions) being controlled by Headquarters will be continued to insure efficient target coverage and compatibility of operations with national policy.

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7. SORTIE RATE

a) Estimated sortie rate and flying hours by type of mission will be as indicated in Enclosure 4. Approximately 4076 flying hours will be required to accomplish 1057 sorties in FY 61 and 3800 flying hours to accomplish 968 sorties in FY 62.

8. SUPPORT

a) Support will be required from the following echelons as indicated. This support will be in accordance with current directives and agreements.

1) Headquarters USAF for military personnel, commo logistics, special airlift, and to serve as intermediary on liaison matters. AFCIG-5 will be the channel for support to all subordinate headquarters.

2) Theater Commanders for air base facilities, logistic support, airlift requirements and for special liaison.

3) Strategic Air Command for certain air base facilities, personnel, logistics support and liaison matters.

4) Airways Air Communications System for communications support.

5) Headquarters Air Weather Service for weather support.

6) National Security Agency for special intelligence reaction reports.

7) National Technical Processing Center for ELINT readout.

8) Department of State for negotiation for use rights to operate from certain foreign countries.

IV RELATIONSHIP TO OTHER FORCES

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2. Pre-HOSTILITIES PERIOD

- a) If international relationships deteriorate to a point where hostilities are considered imminent, Project CHALICE will conduct penetration and peripheral photographic and ELINT sorties at a maximum rate which available personnel, aircraft and equipment can support. Although the military services have photographic and ELINT collection capabilities in the overseas theaters, the U-2's of Project CHALICE are the only capability in place overseas able to penetrate deeply and with comparative physical immunity.
- b) During this period it will be essential that the maximum amount of potential enemy territory be photographed so as to provide the:
- 1) Most probable time when an enemy attack would be launched.
 - 2) Size of the available enemy attack force.
 - 3) Type and extent of probable enemy attack.
 - 4) Locations from where attacking forces and/or missiles would be launched.
 - 5) Overall capability of the enemy to sustain an attack.
 - 6) Most current target data for friendly attacking forces to use for retaliation.
- c) The need for current electronic intelligence will be very necessary to make available the frequencies and locations of enemy radars so that:
- 1) Friendly attacking forces can employ jamming techniques most effectively.

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2) Weak spots can be located through which attacking forces can penetrate with the least probability of interception.

3) Radar guidance of enemy interceptors and/or missiles can be interrupted.

d) During the pre-hostilities period operational control will remain with Project CHALICE Headquarters. Deployment to prearranged rear bases may be necessary as dictated by the existing situation (Encl. #2). Project CHALICE resources will be utilized, on a first priority basis, to obtain reconnaissance coverage of SAC objectives as outlined in Appendix 1 to Annex "B" of SAC Operations Order #1009.

3. HOSTILITIES

a) When hostilities break out, Project overseas assets will revert to the operational control of the Strategic Air Command under the Joint Chiefs of Staff. This transfer of control and assignment will be in accordance with the provisions of a Joint Agreement (CHAL 0239), dated 19 July 1958, with USAF, DCS/O, concurrence date 24 Sept 1958, and in accordance with the CHALICE EWP Operational Plan, dated 20 January 1959. Upon execution of the SAC 50 series EWO, SAC Operations Order Number 1009, Appendix 2 to Annex "B" contains the necessary instructions for utilization of CHALICE resources.

b) Military personnel will be effected in accordance with the arrangements contained in the Personnel Annex of the above-mentioned transfer agreement.

c) It is planned that civilian personnel will continue to function until relieved by military personnel.



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APPROVED:



Enclosures (4)

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V ENCLOSURES

Enclosure Number 1

Life Expectancy of the U-2 for Overflights

Because of the special classification of the information contained in this report its contents are being held within Intelligence Section/DPD-DD/P and it will be distributed on a "need to know" basis.

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